

ABSTRACT OF THE DISCLOSURE

A hand held, self-contained, automatic, low power and rapid sensor platform for detecting and quantifying a plurality of analytes. A sample solution potentially containing an unknown amount of an analyte, is passed through an affinity column which contains antibodies to which the analyte binds thereby extracting the analyte. The affinity column is then rinsed to remove any other chemicals that may fluoresce. The rinsed affinity column is then eluted with a known volume of elution fluid causing the analyte to release from the antibody and dissolve in the fluid (eluant). The eluant is then placed in the quartz cuvette of a fluorometer. The analyte suspended in the eluant fluoresces at a waveband which is different than that of the light source that excites it. The amount of fluorescence is measured and the level of analyte determined. The rinsing and elution fluids, and/or the affinity column can be placed in a module for easy insertion and removal from the sensor when depleted or when the sensor is to be used against a different analyte.